



PROGRAMMING

THE PROGRAM

The Information Technology Computer Systems (ITCS) specialty is for students who want to become programmers, responsible for writing, testing, and maintaining the source code of computer programs. The process of writing source codes requires expertise in many different subjects, including knowledge of the desired business or organization processes, specialized algorithms, and formal logic.

An *applications programmer* writes and revises programs that run on specific software. A *computer programmer* focuses on one or more of the following areas (with employment opportunities increasing with each added area of expertise): multimedia, the Internet, specific computer languages, research, management, and database.

Macomb's program prepares students pursuing either career path to be effective problem solvers capable of developing systems solutions using available methods and techniques.

A certificate option is available as an alternative to the associate degree. Certificate programs offer a high degree of specialization in a short program of instruction and may later be applied toward an associate degree.

EMPLOYMENT OUTLOOK

With an associate degree in Programming, you will be qualified for careers including computer programmer and software developer. Median salary in Michigan for these careers is \$70,860.

I had Professor Kohl for Java. To be honest, I think I was the worst one in the class, and that really bothered me. He said, "Don't get down on yourself. Stick with it and it'll pay off." And that rung in my ears. Sometimes you need to hear that to get on the right path.

—George Westerman,
SQL Developer

GAINFUL EMPLOYMENT DISCLOSURE

For information about program cost, on-time completion rates, typical student debt, and other important information, visit: Information Technology-Programming, Certificate: <http://www.macomb.edu/ge/ITPROGCT/>

FOR MORE INFORMATION

Call 866.622.6621
visit www.macomb.edu
or contact an instructor:

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**Macomb
Community College**

Education • Enrichment • Economic Development

Discover. Connect. *Advance.*SM



MACOMB

TEST THE WATERS

At Macomb, you can “test the waters,” exploring the features and benefits of each IT specialty for about **one-quarter the cost of a publicly funded Michigan four-year university**, before making your choice and earning your Associate of Applied Science degree.

2 + 2 = \$1,000,000

Although skill-specific certificates are available in all of Macomb’s IT specialties, a bachelor’s degree is the requirement for the most desirable IT jobs. And U.S. Census Bureau statistics show that a student with a four-year degree will earn one-million dollars more over their lifetime!

PLANNING TO TRANSFER TO A FOUR-YEAR COLLEGE OR UNIVERSITY?

Macomb’s IT program provides a direct path to a bachelor’s degree at select colleges and universities, and up to 90 credits earned at Macomb may be transferable. Students intending to transfer to another college or university should talk to a Macomb counselor or academic advisor before registering for classes.

Center Campus: 586.286.2228

South Campus: 586.445.7211

Email: answer@macomb.edu

WORKING IN A VIRTUAL WORLD

The Information Technology Department at Macomb Community College has seven areas of study to launch your career and shape the future of technology.

COMPUTER APPLICATIONS

IT Professional: gain knowledge in Windows-based applications, Web design, programming, and networking

COMPUTER NETWORKING

Networking Specialist—Cisco Network Professional: focuses on the Cisco Networking Academy, wired and wireless networking technologies, network security, and troubleshooting techniques

Networking Specialist—Microsoft Enterprise Administrator: handle day-to-day management of the server operating system, file structure, and directory services

Networking Specialist—Network Security Professional: tools and techniques used to safeguard the communications networks of an organization from unauthorized access

PROGRAMMING

Programming: creation of custom software using languages such as C++, C#, Java, and the .NET Framework

Programming for Electronic Games: creation of computer games for multiple potential audiences, whose target uses include entertainment, training, and scenario planning (simulation)

WEB AND INTERNET TECHNOLOGIES

Website Programming: creation of interactive websites utilizing programming tools such as JavaScript, ASP.NET, and PHP—this specialty supports the creation of e-commerce websites

**For general information about
Macomb Community College:**

www.macomb.edu

866.Macomb1 (866.622.6621)

answer@macomb.edu